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EXAMINER	
ELALLAM, AHMED	
ART UNIT	**PAPER NUMBER**
2668	

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/632,519	HELMY ET AL.	
	Examiner	Art Unit	
	AHMED ELALLAM	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 13-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *01/04/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This is responsive to RCE filed on 01/04/2006

Claims 1-11, and 13-29 are pending.

Claim Objections

1. Claim 18 is objected to because of the following informalities:

Claim 18 refers to the proxy application, however, parent claim refers to a first and second proxy applications, therefore it is not clear which proxy application is referred to in claim 18.

Appropriate correction is required.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed **memory for storing data** and **processor for executing the stored data** must be shown or the feature(s) canceled from claim 25. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 13-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 19, it is not clear what is meant by the limitation "enabling the first proxy application to provide the data stream from the source node to the destination node over a first TCP transport layer connection, wherein the first proxy application forwards the data stream over the plurality of the TCP transport layer connections to the second proxy application", in particular, the phrase "enabling the first proxy application to provide the data stream from the source node to the destination node over a first TCP transport layer connection" indicate only one TCP connection between the source and

destination, which is contradictory with the claimed forwarding the data stream over the plurality of the TCP transport layer connections. Hereinafter the single TCP connection is interpreted in accordance with the specification to mean a TCP connection between the source node and the first proxy application.

Claims 14-19 depends from claim 13, thus they are subject to the same rejections.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 18, 23, 25 and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 18, the specification as originally filed does not disclose the claimed "if a plurality of data streams are provided over one of the plurality of TCP transport layer connections, enabling the proxy application to employ a dictionary based compression algorithm on at least a portion of at least one data stream that is communicated to the second proxy application". In particular, while the specification has

support for the use of LZ77 algorithm that uses a persistent compression dictionary associated with a persistent connection assigned to the transfer the data, paragraph [0019], and the compression dictionary compress all streams of data belonging to a given connection paragraph [0045], it doesn't have support for the condition that unless a plurality of data streams are provided over one of the plurality of TCP transport layer connections, then at least a portion of one data stream is subject to compression, and the rest of data streams is not.

Also on line 1, the term "is" is seemingly a typo error and it should be deleted.

Claims 23 and 28 suffer from similar deficiencies as in claim 18. Thus they are subject to similar rejections.

Regarding claim 25, the specification as originally filed does not describe or give any example of the claimed memory for storing data and a processor for executing the stored data.

In the following art rejections, the limitation of claim 18 is interpreted to mean that data streams are subject to compression.

Claim Rejections - 35 USC § 102

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 6-11, 13-17, 19-22, 24, 26, 27 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Bartlett et al, US 2003/0177396 A1.

Regarding claim 1, with reference to figures 1, 5, 6 and 7, Bartlett discloses a method for handling packet traffic in a data network comprising:

routing outgoing network layer packet traffic to a local network Performance Enhancing Proxying (PEP) peer (101 as in figure 1, and 701 as in figure 7) associated with a host 719 (the host is the claimed selected source node) see figure 7, (claimed routing outgoing network layer packet traffic associated with a network layer connection from a selected source node to a local network accelerator associated with a node which is a source of the packet traffic network, the local accelerator running a proxy application); Bartlett also discloses intercepting the packet traffic, see [0066], and multiple TCP connections are multiplexed onto and carried by a single backbone connection (claimed physical layer persistent connection) to a remote PEP peer (107 as in figure 1, and 705 as in figure 7) for providing an end-to-end connections between IP host 301 and its other IP host on the other side of the backbone link, see paragraphs [0065], [0068], [0098] , [0099], and [0111] (claimed opening two or more Transmission Control Protocol (TCP) transport layer end-to-end connections over at least one persistent physical layer connection between the local network accelerator and at least one remote network accelerator); (Examiner, in accordance with the specification, interpreted the teaching of Bartlett of the multiple TCP connections that are multiplexed and carried by a single backbone connection to a remote PEP peer for carrying the packet traffic from a source host to a destination host, as been the claimed transmitting processed packet traffic to the at least one remote network accelerator associated with

a destination node which is a destination of the packet traffic via the two or more transport layer connections). See paragraph [0129].

Regarding claim 2, Bartlett discloses that the PEPs (proxying) consist of a priority kernel 517 (unit 517, figure 5), the priority kernel is used to control the available backbone capacity for different priority levels, the kernel uses the criteria comprising source IP, source port number TCP port number, UDP port numbers, etc. See paragraph [0104]. (Claimed a proxy to proxy protocol is employed to specify at least an original transport protocol identifier, original address, and original ports of the nodes).

Regarding claims 6 and 12, with reference to figure 5, Bartlett discloses a PEP (Performance Enhancing Proxying) device (claimed data network routing device) comprising:

Router module 505 connected to receive incoming packet from a source node (example: host 301, fig. 3); Bartlett discloses that the packet are IP packet that are routed in accordance with respective IP addresses, See paragraph [0144]; (Examiner interpreted the IP routing of Burnett, using the routing module 505, as the claimed router examining the incoming packets to determine if they are addressed to a destination which is not local to the router);

A TCP spoofing kernel 513 that locally acknowledge data segments (packets) received from host (301), (claimed socket interface), see paragraph [0098];

Backbone protocol kernel 515 in combination with data compression Kernel 521 (claimed proxy application), the Backbone protocol kernel 515 is used for the multiplexing of multiple TCP connections (claimed multiple transport layer connections)

carried onto a single backbone connection (claimed al least one physical layer connection), see paragraph [0099],wherein end-to-end connections between IP host 301 and its other IP host on the other side of the backbone link are provided, see paragraphs [0065], [0068], [0098] , and [0111] . (Claimed a proxy application, connected to receive incoming traffic from the socket interface, the proxy application associated with the router (module), and the proxy application, acting as a proxy for the source node, and establishing multiple TCP transport layer end to end connections on behalf of the source node over at least one physical connection, the multiple transport layer connections capable of carrying packets to a destination node in parallel).

Regarding claim 7, Bartlett discloses that the PEP 101 and its peer PEP 107 of figure 6, wherein PEP 101 receives packets from a remote host, see paragraph [0122]. (Examiner interpreted the identical PEPs (figure 6) interfacing each LAN as having the characteristic of transmitting and receiving traffic across the backbone connection as being the "claimed proxy application additionally receives packets from a network connection addressed to a destination node which is local to the router").

Regarding claim 8, Bartlett further discloses having data compression Kernel 521 for compressing data prior to transmission across the backbone link [0101], (Examiner notes that by way of symmetry, compressed data when received by the PEP, it must be decompressed so it can be delivered to the destination host). (Claimed packets are compressed by the proxy application, and additionally comprising a data decompressor, for decompressing received packet, and the router forwards decompressed packets to the destination node).

Regarding claim 9, Bartlett discloses that data from a sending host is transmitted over multiple TCP connections that are multiplexed onto a backbone connection between peers PEPs 101 and 107. See paragraph [0111]. (Claimed at least one TCP transport layer sessions are carried over a persistent connection established with another data network routing device having a proxy application running thereon), (Examiner interpreted the PEP 107 as the claimed "another data network routing device having a proxy application thereon", since it has similar components and provides functionalities similar to that of PEP 101).

Regarding claim 10, Bartlett discloses establishing a backbone connection between the two proxying devices (PEP, each proxying device has a proxy application, as indicated above with reference to claim 9, each using a spoofing kernel. See paragraph [0111]. (Claimed a proxy-to-proxy protocol is used to pass original source node and destination node information).

Regarding claim 11, Bartlett discloses a priority Kernel 517 within the PEP 101 (proxying peer) for controlling the available backbone capacity for different priority levels, the kernel 517 uses the criteria comprising source IP, source port number TCP port number, UDP port numbers, etc.. See paragraph [0104]. (Claimed a proxy-to-proxy protocol specifies an original type for the packets).

Regarding claim 13 as best understood, with reference to figures 1, 5, 6 and 7, Bartlett discloses a method for communicating a data stream between a source node (Host 101 in figure 1, and 719, figure 7) and a destination node (not shown in figure 3, host 713, figure 7), comprising:

Transmitting data segments (claimed data streams) from the source node to the destination node over multiple TCP connections that are multiplexed onto and carried by a single backbone connection, the multiple TCP connections being established between local network Performance Enhancing Proxying (PEP) peer (101 as in figure 1, and 701 as in figure 7) (claimed first proxy application) associated with a host 719 and a PEP (claimed second proxy application) associated with the other destination node, see paragraph [0066], (claimed establishing a plurality of transmission Control (TCP) transport layer connections between a first proxy application in communication with the source node and a second proxy application in communication with the second node, the first proxy application and second proxy application are over at least one physical layer connection);

Bartlett further discloses that after backbone connection is established between the PEPs (spoofers), IP host 301 initiates a TCP connection, a TCP spoofing kernel 513 of the PEP peer 101 local to the respective IP host checks its configured selective TCP spoofing rule, and If the rules indicate that the TCP connection should be spoofed, the spoofing PEP peer 101 locally responds to the IP host's TCP three-way handshake, then the spoofing PEP peer 101 sends a message across the backbone link to its peer 107 asking it to initiate a TCP three-way handshake with the other IP host on its side of the backbone link (destination node), see paragraph [0111]. (Claimed enabling the first proxy application to provide the data stream from the source node over a first TCP transport layer connection (see interpretation above under 112 2nd rejections), wherein the first proxy application forwards the data stream over the

plurality of TCP transport layer connections to the second proxy application; and enabling the second proxy application to provide the data stream received over the plurality of TCP transport layer connections to the destination node over a second TCP transport layer connection).

Regarding claim 20, claim 20 have the same scope of claim 13, thus it is subject to similar rejections.

Regarding claim 25, claim 25 is a computer instruction stored in memory for the implementation of the method of claim 13. Bartlett discloses that his method can be implemented using computer-readable media for providing instructions to a processor for execution. See [0161].

Regarding claims 14, 21 and 26, Bartlett as indicated above with regard to parent claim 13 discloses that the spoofing PEP peer 101 locally responds to the IP host's TCP three-way handshake, and spoofing peer 107 initiating a TCP three-way handshake with the other IP host on its side of the backbone link, see [0111]. (Claimed enabling the communication of data streams to the destination node to appear to the source node as occurring directly over the first TCP transport layer connection, and enabling communication with the source node to appear to the destination node as occurring directly over the second TCP transport layer connection).

Regarding claim 15, as discussed above, Bartlett discloses that the spoofing PEP peer 101 locally responds to the IP host's TCP three-way handshake, [0111], in addition Bartlett also discloses that spoofing can be based on the source IP address, see paragraph [0093]. (Claimed enabling the first proxy application to receive the data

stream for the destination node, further comprises enabling the first proxy application to spoof an address associated with the source node for the first TCP transport layer connection).

Regarding claim 16, as discussed above, Bartlett discloses spoofing peer 107 initiating a TCP three-way handshake with the other IP host on its side of the backbone link, see [0111]. In addition Bartlett discloses that spoofing can be based on the destination IP address, see paragraph [0093]. (Claimed enabling the second proxy application to provide the data stream to the destination node, further comprises enabling the second proxy application to spoof at least another address associated with the destination node for the second TCP transport layer connection).

Regarding claims 17, 22 and 27, Bartlett discloses a router module (505, figure 5) for receiving incoming packet from a source node (example: host 301, fig. 3) (claimed if the destination node is remote from the source node), and a TCP spoofing kernel 513 that locally acknowledge data segments (packets) received from host (301), (claimed socket interface), see paragraph [0098]. (Claimed if the destination node is remote to the source node, providing the data stream to the first proxy application over a socket interface).

Regarding claims 19, 24 and 29, Bartlett discloses multiple TCP connections are multiplexed onto and carried by a single backbone connection, which is a connection between PEPs. Bartlett implicitly discloses communicating data streams over a plurality of PEP connection, because that is needed for other host I the system to simultaneously use the backbone. (Claimed communicating the data stream over a plurality of physical

layer connections, wherein at least a portion of the plurality of TCP transport layer connections are provided over each of the plurality of physical layer connections).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 3-5, 18, 23 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett in view of Dillon et al, US 6,658,463).

Regarding claims 3-4,18, 23 and 28 Bartlett while discloses using a compression kernel at each PEP (Performance Enhancing Proxying peer), see paragraph [0011], it doesn't specify that the compression is a dictionary based compression algorithm (as in claim 3) and the coding is a Huffman coding (as in claim 4).

However, Dillon discloses in the same field of endeavor, using a dictionary based compression algorithm for decoding data before transmission (as in claims 3, 18,23 and 28) and the coding is a Huffman coding (as in claim 4). See column 14, lines 56-67 and column 15 –column 16, lines 57. It would have been obvious to an ordinary person of skill in the art, at the time the invention was made to implement the dictionary based compression algorithm using Huffman coding as taught by Dillon as the compression kernel of Bartlett so that less computational resources can be used (column 15, line15-

22). The advantage in Bartlett's system would have efficient use of the available bandwidth due to the composite benefit of compressing data with a minimized computational time.

Regarding claim 5, Bartlett does not disclose a dictionary associated with an existing end-to-end connection is utilized to service a new connection request.

However, Dillon discloses that a dictionary is used to provide high compression should data similar to earlier previously transferred data be submitted for compression. See column 15, lines 35-48. (Claimed a dictionary associated with an existing end-to-end connection is utilized to service a new connection request).

Therefore, it would have been obvious to an ordinary person of skill in the art, at the time the invention was made to use Dillon's end-to-end associated dictionaries in establishing Bartlett new connection so that prior to transmission of data, compression would be much faster if the data is similar in content to other data previously transmitted. (Dillon, column 15,lines 40-48). The advantage in Bartlett's system would be efficient use of the available bandwidth due to the composite benefit of high compression of data due to a minimized computational time, and the efficient use of the available backbone capacity due to the compression benefit.

Response to Arguments

7. Applicant's arguments filed January 12/15/2005 have been fully considered but they are not persuasive:

Applicants argue that Bartlett does not disclose the limitations of claim 1 as amended. In particular Applicants stated the plurality of transport layer connections occur over TCP end-to-end transmission layer connections, Examiner notes that Bartlett discloses such feature, for example data flowing from a host to the PEP over a TCP connection and then the data is carried over multiple TCP connections between the first PEP and second PEP, further the second PEP for forwarding the data over a TCP connection to the destination host as indicated in the rejection above.

Applicants also alleged that *Bartlett teaches away from employing the TCP transportation layer arrangement, in particular, Bartlett provides for employing an optimized protocol that is separate from the TCP communication protocol at the transportation layer. Also, the cited reference teaches away y from the claimed invention by trumpeting the virtues of the optimized protocol over the perceived limitations of TCP , see Paragraph [0066].* Emphasis added.

In response Examiner note that such argument is not related to the claimed subject matter. In addition, Applicants mischaracterized Bartlett teaching in paragraph [0066]. Paragraph [0066] recites:

[The PEP peer 101 intercepts a TCP connection's packet and locally acknowledges that packet and then transports the packet to its PEP peer 107 via a protocol which is designed in such a way as to overcome and/or reduce the limitations of conventional TCP/IP networks. The optimized protocol is referred to as a "backbone protocol" and a "backbone connection" (or PEP connection) refers to this protocol connecting a pair of PEP peers 101, 107. As used herein, "backbone" connection denotes a PEP connection over an access network (e.g., network 307) that can serve as a backbone network;

however, because a PEP connection can be established between PEP peers 101, 107 over any type of network, the term "PEP connection" is used synonymously with "PEP backbone connection" or "backbone connection."].

It appear from the first part of the paragraph above that Bartlett not only discloses the invention as claimed but the invention as a whole given similarities of Applicants invention that uses the same concept of local acknowledgment of received packet by the first proxy in overcoming the limitations of TCP protocol.

As to the argument to claims 3-5, Examiner disagrees that Bartlett fails to disclose the limitations of claim 1. Thus Dillon in view of Bartlett does teach the limitations of claim 3-5.

Examiner note that Applicants lacked response to the argument presented by the Examiner in the final office action.

Examiner believes that, given the most reasonable interpretation of the claimed limitations, the rejection above is proper.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: see attached form PTP-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (571) 272-3097. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kizou Hassan can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AHMED ELALLAM
Examiner
Art Unit 2662
3/5/2006

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